REMARKS

Applicant is in receipt of the Office Action mailed January 5, 2004.

Rejections Under Sections 102 and 103

Claims 1-3 and 7-16 were rejected under 35 U.S.C. 102(b) as being anticipated by Cosman et al. (US 5,943,060), hereafter referred to as Cosman; claim 4 was rejected under 35 U.S.C. 103(a) as being unpatentable over Cosman et al. (US 5,943,060); and claims 5 and 6 were rejected under 35 U.S.C. 103(a) as being unpatentable over Cosman et al. (US 5,943,060) as applied to claim 1 above, and further in view of Snyder et al. (US 6,326,964), hereafter referred to as Snyder.

Applicant respectfully traverses these rejections based on the following reasoning.

Claim 1 recites:

> (Original) A method for generating pixels for a display device, the method comprising:
>
> storing a plurality samples in a memory;
>
> reading a first portion of samples from the memory, wherein the first portion of samples corresponds to pixels in at least two neighboring scan lines;
>
> filtering a first subset of the first portion of samples to generate a first pixel in a first scan line;
>
> filtering a second subset of the first portion of samples to generate a second pixel in a second scan line, wherein the second scan line neighbors the first scan line.

Applicant's specification defines the term sample on page 3, lines 14-22:

> "As used herein, the term "sample" refers to calculated information that indicates the color of the sample and possibly other information, such as depth (z),

transparency, etc., of a particular point on an object or image. For example, a sample may comprise the following component values: a red value, a green value, a blue value, a z value, and an alpha value (e.g., representing the transparency of the sample). A sample may also comprise other information, e.g., a z-depth value, a blur value, an intensity value, brighter-than-bright information, and an indicator that the sample consists partially or completely of control information rather than color information (i.e., "sample control information")."

Cosman neither teaches nor suggests 1) storing a plurality of (rendered) samples in a memory, 2) reading a first portion of samples from the memory, or 3) selecting the first portion of samples to be read so that the first portion includes the samples used to filter pixel values for at least one pixel in each of at least two neighboring scan lines.

Cosman does teach storing information corresponding to one or more polygons for each pixel location and a mask for each polygon indicating each specific sub-pixel location that lies within the polygon. However, sample data rendered for a specific sub-pixel location is not stored in the frame buffer. In addition, polygon data corresponds to a region or area of an object or image, not a specific point on an object or image as specified above.

Cosman also teaches reading the information stored for the one or more polygons that include a sub-pixel location (the "heap"), but this information does not include the data defined above as a "sample". Instead, Cosman teaches using the polygon information read from the frame buffer to render sample values. The sample values rendered for each polygon are then combined or blended to generate a "sample" as defined above.

Cosman teaches a system and method for reducing the size of a frame buffer memory by storing polygon data on a per pixel basis, rather than storing sample data. As disclosed in column 1, line 67 and column 2, lines 1-13 and 15-17, Cosman actually teaches away from storing samples for each sub-pixel location:

"For example, a graphics system that uses 16 sub-pixels per pixel and has a display with a 1024-by-1024 array of pixels would use over 16 million frame

buffer locations for the sub-pixel data. Due to the relatively high cost of frame buffer memory, a need exists for a computer graphics display system that produces anti-aliased images, but uses less frame buffer memory.

The present invention provides a novel memory allocation scheme and a novel sub-pixel sampling technique to reduce memory requirements and provide high quality anti-aliased images. The memory allocation scheme involves storing pixel data on a per-polygon, per-pixel basis rather than storing data for each sub-pixel as discussed above."

"Pixel data is stored on a per-polygon, per-pixel basis in the frame buffer by separately storing each polygon that influences a pixel in memory locations allocated for that pixel."

Applicant further submits that Cosman does not teach "reading a first portion of samples from the memory, wherein the first portion of samples corresponds to pixels in at least two neighboring scan lines."

Cosman further does not teach using samples from a single read operation to perform:

"filtering a first subset of the first portion of samples to generate a first pixel in a first scan line; and

filtering a second subset of the first portion of samples to generate a second pixel in a second scan line, wherein the second scan line neighbors the first scan line."

Therefore, claim 1 and its dependents are patentably distinguished over Cosman, for at least the reasons stated above. Claims 9 and 16 recite features similar to those recited in claim 1, and thus, claims 9 and its dependents and claim 16 are patentably distinguished over Cosman and Synder based on reasoning similar to that given above in support of claim 1.

CONCLUSION

Applicant submits the application is in condition for allowance, and an early notice to that effect is requested.

If any extensions of time (under 37 C.F.R. § 1.136) are necessary to prevent the above referenced application(s) from becoming abandoned, Applicant(s) hereby petition for such extensions. If any fees are due, the Commissioner is authorized to charge said fees to Meyertons, Hood, Kivlin, Kowert & Goetzel PC Deposit Account No. 50-1505/5181-85000/JCH.

Also enclosed herewith are the following items:

- ☒ Return Receipt Postcard
- ☐ Request for Approval of Drawing Changes
- ☒ Notice of Change of Address
- ☐ Check in the amount of $ for fees ( ).
- ☐ Other:

Respectfully submitted,

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